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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/585,061	06/01/2000	Samuel M.D. Norville	9105-3/JMD	5737

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James M Durlacher  
Woodard Emhardt Naughton Moriarty and McNett  
Bank One Center/Tower Suite 3700  
111 Monument Circle  
Indianapolis, IN 46204-5137

EXAMINER

LIN, KUANG Y

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 05/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

T-D-11

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/585,061		NORVILLE ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Kuang Y. Lin		1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 March 2002 and 20 April 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19, 24-26 and 31-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19, 24-26 and 31-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>6</u> . | 6) <input type="checkbox"/> Other:  |

1. Applicants responded to the restriction requirement by canceling non-election claims 20-23 and 27-30, without traverse. Accordingly, the restriction is hereby made final.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-19, 24-26, and 31-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Flemings et al ('544) or Kono ('526) and further in view of either Winter et al ('210) or JP 1-192,446.

Both Flemings et al and Kono substantially show the invention as claimed (the elements 10-12 in Flemings et al and the barrel 30 in Kono are considered as a vessel; the semi-solid 101 in figure 9 of Flemings et al and the semi-solid discharged into the

Art Unit: 1725

injection cylinder 40 in Kono are considered as slurry billets) except that they use a mechanical stirrer instead of electromagnetic stirrer for forming semi-solid slurry. However, both Winter et al and Japan '446 show that it is conventional to use electromagnetic stirrer for forming semi-solid slurry in a casting process. Apparently, the electromagnetic stirrer does not have problems such as contamination of molten metal, and wear and corrosion of the stirring rod (see col. 2, lines 28+ of Winter et al) as the mechanical stirrer does since no part of the electromagnetic stirrer contacts with the molten metal. Also, the use of an electromagnetic force to effect vibration of the semi-molten metal is far superior to the known mechanical process (see col. 3, lines 9-12 of Winter et al). In view of the prior art teachings as a whole, it would have been obvious to use the electromagnetic stirrer of Winter et al or Japan '446 in the die casting process of Flemings et al or Kono to produce a better and purer cast product. With respect to claims 2-8 and 26, it would have been obvious to obtain the optimal casting cycle time through routine experimentation. With respect to claims 9 and 16, it would have been obvious to use a transferring device for delivering molten metal to the vessel when the molten metal was melted at different location than the caster. It is a common practice to use robot for carrying out the routine operation. With respect to claims 17 and 18, it is a common practice to either electromagnetically stir the molten metal to cause the same flow circumferentially or longitudinally. With respect to claim 19, it is conventional to add reinforcement particles into molten metal before casting such that to form a metal matrix composite article if the composite article is designated. With respect to claim 31, it would have been obvious to change the any power supply

parameter to control the strength of the EM field. With respect to claim 38, it would have been obvious to arrange any combination of different type of stirrers around the vessel depending on the designated stirring pattern to be obtained.

5. Applicant's arguments filed March 29, 2002 have been fully considered but they are not persuasive.

a. In pages 14 and 15 of the remarks applicants stated that there is no motivation and desirability of combining the prior art teachings. However, it is noted that in col. 2, line 28+ and col. 3, line 9+ of Winter et al it explains the advantage of using EM stirrer over mechanical stirrer. Thus, applicants' arguments are moot.

b. In page 17 of the remarks applicants traverse the statement of "routine experimentation" for the claimed features. However, it is noted that the scope of the claim does not specify alloy system and the other process parameters, such as the dimension of the billet, the temperature of the molten metal, etc. Also, it is a common knowledge that in a casting process, such as a die casting process, a lot of test shots must be performed before starting the production shot. Thus, Examiner's statement of "routine experimentation" with respect to the claimed parameters is deemed to be proper.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

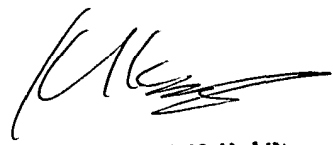
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuang Y. Lin whose telephone number is 703-308-2322. The examiner can normally be reached on Monday-Friday, 10:00-6:30,.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas X Dunn can be reached on 703-308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7719 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

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May 7, 2002

  
KUANG Y. LIN  
EXAMINER  
GROUP 320  
1725